DATA EVALUATION RECORD
§ 72-1 - ACUTE LC_{50} TEST WITH A COLDWATER FISH

1. **CHEMICAL:** Pymetrozine PC Code No.: 101103

2. **TEST MATERIAL:** CGA-215,944 Purity: 98.5%

3. **CITATION:**

Authors: R.L. Boeri, P.L. Kowalski, and T.J. Ward
Title: Acute Flow-Through Toxicity of CGA-215,944 to the Rainbow Trout, *Oncorhynchus mykiss*
Study Completion Date: November 23, 1994
Laboratory: T.R. Wilbury Laboratories, Inc., Marblehead, MA
Sponsor: Ciba-Geigy Corporation, Greensboro, NC
Laboratory Report ID: 444-CG
MRID No.: 440249-13
DP Barcode: D243834

4. **REVIEWED BY:** Karl Bullock, M.S., Environmental Scientist, Golder Associates Inc.

Signature: Karl Bullock **Date:** 5/11/98

APPROVED BY: Pim Kosalwat, Ph.D., Senior Scientist, Golder Associates Inc.

Signature: P. Kosalwat **Date:** 5/11/98

5. **APPROVED BY:**

Signature: Kathryn V Montague **Date:** 8/24/98
Stephen Cary 2/1/99

6. **STUDY PARAMETERS:**

Age or Size of Test Organism: Mean: 33 mm
Definitive Test Duration: 96 hours
Study Method: Flow-through
Type of Concentrations: Mean measured

7. **CONCLUSIONS:** This study is scientifically sound and fulfills the guideline requirements for an acute toxicity test with the rainbow trout. Based on mean measured concentrations, the 96-hour LC_{50} was determined to be >128 ppm ai, which classifies CGA-215,944 as practically non-toxic to the rainbow trout. The NOEC was 128 ppm ai.

Results Synopsis

LC_{50}: >128 ppm ai 95% C.I.: N/A

NOEC: 128 ppm ai Probit Slope: N/A

8. ADEQUACY OF THE STUDY:

A. Classification: Core.

B. Rationale: N/A.

C. Repairability: N/A.

9. GUIDELINE DEVIATIONS:

1. The range of fish lengths was not reported.
2. Dilution water was dechlorinated tap water.

10. SUBMISSION PURPOSE:

11. MATERIALS AND METHODS:

A. Test Organisms

Guideline Criteria	Reported Information
Species Preferred species is the rainbow trout (*Oncorhynchus mykiss*)	*Oncorhynchus mykiss*
Mean Weight 0.1-5 g	0.30 g
Mean Standard Length Longest not > 2x shortest	Mean: 33 mm Range: not reported
Supplier	Mt. Lassen Trout Farm, Red Bluff, CA
All fish from same source?	Yes
All fish from the same year class?	Yes

B. Source/Acclimation

Guideline Criteria	Reported Information
Acclimation Period Minimum 14 days	14 days
Wild caught organisms were quarantined for 7 days?	N/A
Were there signs of disease or injury?	No sickness or injury within the 14 days prior to testing
If treated for disease, was there no sign of the disease remaining during the 48 hours prior to testing?	N/A
Feeding No feeding during the study	Last fed 48 hours prior to testing
Pretest Mortality < 3% mortality 48 hours prior to testing	<3% mortality 48 hours prior to testing

C. Test System

Guideline Criteria	Reported Information
Source of dilution water Soft reconstituted water or water from a natural source, **not** dechlorinated tap water	Carbon filtered, dechlorinated tap water, aerated, recirculated through particle filters, activated carbon, and UV sterilized before use.
Does water support test animals without observable signs of stress?	Yes
Water Temperature 12°C	11.8-12.4°C
pH Prefer 7.2 to 7.6	7.2-7.6
Dissolved Oxygen Static: ≥ 60% during 1st 48 hrs and ≥ 40% during 2nd 48 hrs, flow-through: ≥ 60%	≥92% during the test

Guideline Criteria	Reported Information
Total Hardness Prefer 40 to 200 mg/L as $CaCO_3$	48 mg/L as $CaCO_3$
Test Aquaria 1. Material: Glass or stainless steel 2. Size: Volume of 18.9 L (5 gal) or 30 x 60 x 30 cm 3. Fill volume: 15-30 L of solution	 Glass 20 L 15 L
Type of Dilution System Must provide reproducible supply of toxicant	Intermittent flow proportional diluter
Flow Rate Consistent flow rate of 5-10 vol/24 hours, meter systems calibrated before study and checked twice daily during test period	6.6 vol/24 hours
Biomass Loading Rate Static: ≤ 0.8 g/L at ≤ 17°C, ≤ 0.5 g/L at > 17°C; flow-through: ≤ 1 g/L/day	0.030 g/L/day
Photoperiod 16 hours light, 8 hours dark	16 h light, 8 h dark
Solvents Not to exceed 0.5 mL/L for static tests or 0.1 mL/L for flow-through tests	Solvent: none Maximum conc.: N/A

D. Test Design

Guideline Criteria	Reported Information
Range Finding Test If LC_{50} >100 mg/L with 30 fish, then no definitive test is required.	Range finding static test with control and one nominal concentration of 130 ppm ai resulted in 0 and 80% mortality, respectively after 96 hours.

Guideline Criteria	Reported Information
Nominal Concentrations of Definitive Test Control & 5 treatment levels; dosage should be 60% of the next highest concentration; concentrations should be in a geometric series	Negative control, 20, 33, 52, 78, and 130 mg ai/L
Number of Test Organisms Minimum 10/level, may be divided among containers	20 fish per treatment level or control, 10 per replicate
Test organisms randomly or impartially assigned to test vessels?	Yes
Biological observations made every 24 hours?	Yes
Water Parameter Measurements 1. Temperature Measured constantly or, if water baths are used, every 6 hrs, may not vary > 1°C 2. DO and pH Measured at beginning of test and ever 48 h in the high, medium, and low doses and in the control	Temperature, DO, and pH were measured daily in each test chamber. The temperature in one test vessel was also recorded at least every six hours during the test.
Chemical Analysis Needed if solutions were aerated, if chemical was volatile, insoluble, or known to absorb, if precipitate formed, if containers were not steel or glass, or if flow-through system was used	Samples were collected from each replicate test vessel at test initiation and termination and analyzed by HPLC.

12. REPORTED RESULTS:

A. General Results

Guideline Criteria	Reported Information
Quality assurance and GLP compliance statements were included in the report?	Yes

Guideline Criteria	Reported Information
Recovery of Chemical Percent of Nominal: Analytical Capability: Limit of quantitation:	 95 - 104% 85 % 20 ppm
Control Mortality Not more than 10% control organisms may die or show abnormal behavior.	0% mortality in control
Raw data included?	Yes
Signs of toxicity (if any) were described?	No signs of test material toxicity were observed.

Mortality

Concentration (mg ai/L)		Number of Fish	Cumulative Number Dead			
Nominal	Mean Measured		Hour of Study			
			24	48	72	96
Negative Control	<0.50	20	0	0	0	0
20	19.0	20	0	0	0	0
33	33.1	20	0	0	0	0
52	54.2	20	0	0	0	0
78	81.0	20	0	0	0	0
130	128	20	0	0	0	0

Other Significant Results: No sublethal signs of test material toxicity were observed.

B. Statistical Results

Statistical method: Visual observation

LC_{50}: >128 mg ai/L 95% C.I.: N/A

Probit Slope: N/A NOEC: 128 mg ai/L

13. VERIFICATION OF STATISTICAL RESULTS:

Parameter	Result
Binomial Test LC_{50} (95% C.I.)	N/A
Moving Average Angle LC_{50} (95% C.I.)	N/A
Probit LC_{50} (95% C.I.)	N/A
Probit Slope	N/A
NOEC	128 ppm ai

14. REVIEWER'S COMMENTS: This study is scientifically sound and fulfills the guideline requirements for an acute toxicity test with the rainbow trout. Based on mean measured concentrations, the 96-hour LC_{50} was determined to be >128 ppm ai, which classifies CGA-215,944 as practically non-toxic to the rainbow trout. The NOEC was 128 ppm ai. This study is classified as **Core.**